

WHAT IS CLAIMED IS:

1. A downhole separation method, comprising:
disposing a first tube into a wellbore proximate a subterranean zone, at least part of the first tube comprising a production liner;
5 disposing a second tube in a well including the wellbore such that the second tube is outside of and overlaps a portion of the first tube and an entrance of the second tube is at a lower elevation than an exit end of the first tube;
10 causing a flow of a mixture through the production liner and the first tube, the mixture comprising a gas, a liquid, and a plurality of coal fines;
15 retrieving the gas via the well after the mixture exits the exit of the first tube; and
retrieving at least the liquid through the second tube.
- 20 2. The method of Claim 1, further comprising collapsing at least a portion of the wellbore around the production liner.
3. The method of Claim 1, further comprising
25 casing at least a portion of the well.
4. The method of Claim 1, wherein the entrance of the second tube is approximately six to seven feet below the second end of the first tube.

5. The method of Claim 1, wherein disposing a second tube comprises coupling an entrance portion of the second tube to the portion of the first tube.

5 6. The method of Claim 1, wherein the first and second tubes comprise outside diameters of no more than 2 7/8 inches.

7. The method of Claim 1, further comprising
10 substantially aligning a centerline of an upper portion of the first tube and a centerline of a lower portion of the second tube.

8. The method of Claim 1, further comprising
15 removing the liquid within the second tube via a pump disposed therein.

9. The method of Claim 1, wherein the subterranean zone is a coal bed.

10. A downhole separation system, comprising:

a first tube disposed in a wellbore proximate a subterranean zone, at least part of the first tube comprising a production liner;

5 a second tube disposed in a well including the wellbore, the second tube outside of and overlapping a portion of the first tube such that an entrance of the second tube is at a lower elevation than an exit of the first tube;

10 the first tube operable to receive a mixture comprising a gas, a liquid, and a plurality of coal fines from the subterranean zone and to release the gas up the well for production to a surface after the mixture exits the exit of the first tube; and

15 the entrance of the second tube operable to receive at least the liquid from the mixture after the mixture exits the exit of the first tube and travels downward in elevation.

20 11. The system of Claim 10, wherein at least a portion of the wellbore is collapsed around the production liner.

25 12. The system of Claim 10, further comprising a casing disposed within at least a portion of the well.

13. The system of Claim 10, wherein the entrance of the second tube is approximately six to seven feet below the second end of the first tube.

14. The system of Claim 10, wherein an entrance portion of the second tube is coupled to an outside surface of the portion of the first tube.

5 15. The system of Claim 10, wherein the first and second tubes comprise outside diameters of no more than 2 7/8 inches.

10 16. The system of Claim 10, wherein a centerline of an upper portion of the first tube and a centerline of a lower portion of the second tube are substantially aligned.

15 17. The system of Claim 10, wherein an entrance portion of the second tube and the portion of the first tube define a transition region where they couple to one another, the transition region defining an area that facilitates a downward velocity of the liquid exiting the exit of the first tube being less than a rising velocity
20 of the gas exiting the exit of the first tube.

18. The system of Claim 10, further comprising a pump disposed within the second tube, the pump operable to remove the liquid within the second tube.

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19. The system of Claim 10, wherein the subterranean zone is a coal bed.

20. A downhole separation method, comprising:

disposing a first tube in a wellbore proximate
a subterranean zone, at least part of the first tube
comprising a production liner;

5 disposing a pumping tube into a well including
the wellbore;

coupling a separator assembly to an end of the
pumping tube, the separator assembly comprising a
basket and a spiral vane coupled to an inside of the
10 basket;

causing a flow of a mixture through the
production liner and upward through the well, the
mixture comprising a gas, a liquid, and a plurality
of coal fines;

15 retrieving the gas via the well;

directing the liquid and coal fines inside the
basket and around the spiral vane; and

retrieving at least the liquid from inside the
basket.

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21. The method of Claim 20, further comprising
rotating the separator assembly to direct the coal fines
towards a bottom of the basket.

25 22. The method of Claim 21, further comprising
removing the separator assembly from the well to empty
the coal fines from the basket.

30 23. The method of Claim 20, further comprising
collapsing at least a portion of the wellbore around the
production liner.

24. The method of Claim 20, further comprising casing at least a portion of the well.

5 25. The method of Claim 20, further comprising causing a downward velocity of the liquid to be less than a rising velocity of the gas.

10 26. The method of Claim 20, wherein the subterranean zone is a coal bed.

27. A downhole separator assembly, comprising:

a first tube disposed in a wellbore proximate a subterranean zone, at least part of the first tube comprising a production liner;

5 a pumping tube disposed in a well including the wellbore;

a separator assembly coupled to an end of the pumping tube, the separator assembly comprising a basket and a spiral vane coupled to an inside of the
10 basket;

a mixture comprising a gas, a liquid, and a plurality of coal fines associated with the subterranean zone;

whereby the separator assembly defines an area
15 that facilitates a downward velocity of the liquid less than a rising velocity of the gas such that the liquid and coal fines are directed inside the basket and around the spiral vane and the gas is allowed to move upward through the well for production to a
20 surface; and

whereby the pumping tube is operable to retrieve at least the liquid from inside the basket.

28. The system of Claim 27, wherein the separator
25 assembly is adapted to be rotated to direct the coal fines towards a bottom of the basket.

29. The system of Claim 27, wherein an entrance of the pumping tube is disposed at an intermediate portion
30 of the basket and the spiral vane extends below the entrance.

30. The system of Claim 27, wherein the spiral vane is coupled between the inside surface of the basket and an outside surface of the pumping tube.

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31. The system of Claim 27, wherein a diameter of the pumping tube expands within the basket.

32. The system of Claim 27, wherein at least a
10 portion of the wellbore is collapsed around the production liner.

33. The system of Claim 27, further comprising a casing disposed within at least a portion of the well.

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34. The system of Claim 27, wherein the subterranean zone is a coal bed.

35. A downhole separation method, comprising:

collecting a mixture from a coal bed in a production liner, the mixture comprising a gas, a liquid, and a plurality of coal fines;

5 causing the mixture to flow through the production liner and a first tube;

releasing the mixture into a wellbore, whereby the gas travels upward through the wellbore for production to a surface and the liquid and coal
10 fines travel downward through the wellbore; and

removing at least the liquid via a second tube outside of and overlapping a portion of the first tube.

15 36. The method of Claim 35, further comprising collapsing at least a portion of the wellbore around the production liner.

20 37. The method of Claim 35, wherein an entrance of the second tube is approximately six to seven feet below an exit of the first tube.

25 38. The method of Claim 35, wherein the first and second tubes comprise outside diameters of no more than 2 7/8 inches.

30 39. The method of Claim 35, further comprising substantially aligning a centerline of an upper portion of the first tube and a centerline of a lower portion of the second tube.

40. A downhole separation method, comprising:

collecting a mixture from a coal bed in a production liner, the mixture comprising a gas, a liquid, and a plurality of coal fines;

5 causing a flow of the mixture through the production liner and upward through a wellbore;

directing the liquid and coal fines down into a basket while allowing the gas to travel upward through the wellbore for production to a surface;

10 directing the liquid and coal fines around a spiral vane coupled to an inside of the basket to centrifugally direct the coal fines towards a perimeter of the basket; and

15 retrieving at least the liquid from a center of the basket.

41. The method of Claim 40, further comprising rotating the basket to direct the coal fines towards a bottom of the basket.

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42. The method of Claim 21, further comprising removing the basket from the wellbore to empty the coal fines from the basket.

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43. The method of Claim 40, further comprising collapsing at least a portion of the wellbore around the production liner.

30 44. The method of Claim 40, further comprising causing a downward velocity of the liquid and coal fines to be less than a rising velocity of the gas.